DOCUMENT RESUME

ED 282 664 PS 016 643

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TITLE Diverging Pathways, Developmental Transformations, Multiple Etiologies and the Problem of Continuity in Development.
PUB DATE Apr 87
NOTE 6p.; Paper presented at the Biennial Meeting of the Society for Research in Child Development (Baltimore, MD, April 23-26, 1987).
PUB TYPE Speeches/Conference Papers (150)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Adjustment (to Environment); *Attachment Behavior; *Child Development; Day Camp Programs; *Developmental Continuity; Elementary Education; Etiology; Friendship; Interaction Process Analysis; Longitudinal Studies; Q Methodology; *Research Design; Self Concept; *Social Development
IDENTIFIERS Conceptual Analysis; Developmental Patterns

ABSTRACT

This document provides data from an ongoing longitudinal study of the degree of continuity in individual development over time and describes the complexities involved in efforts to determine the nature of individual continuity. Findings from the Minnesota Longitudinal Study of children in a day camp provide evidence for continuity in individual adaptation, from infancy and the preschool years to middle childhood. Detailed observations of 16 children 10 years of age were conducted. Children with secure attachment histories were rated higher than insecurely attached children on ego-resiliency, self-confidence, and overall competence, and lower on dependency. Despite some promising results, the data do not adequately reflect children's developmental continuity. Two important keys to demonstrating continuity are having a sufficiently extensive data base at each time point, and having some degree of equivalency between the measures used. Four conceptual issues need to be resolved for an understanding of the nature of coherence in individual development: (1) behavioral organization becomes increasingly complex with development; (2) transformations can occur whereby an underlying structure is manifest in dramatically different ways; (3) a common developmental core may lead to branching pathways and multiple forms (that is, theoretically consistent but phenotypically dissimilar manifestations); (4) multiple routes may lead to the same basic outcome. (BN)

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# Diverging Pathways, Developmental Transformations, Multiple Etiologies and the Problem of Continuity in Development

L. Alan Sroufe and Deborah Jacobvitz

Determining the degree of of continuity or coherence in individual development over time is quite complex. Decades of research have shown that it is not adequate to simply carry out the same assessments over time. Such studies indicate little continuity in individual development, especially from the early years forward. And yet more complex models currently are yielding strong indications of lawfulness in individual development over time. Four aspects of complexity, which need to be considered in pursuing individual continuity, will be illustrated with data from an ongoing longitudinal study.

We will begin by presenting continuity data from our ongoing longitudinal study and then move on to discuss some key conceptual problems which remain to be solved. At this point children in the Egeland/Sroufe longitudinal study are 10-11 years old. About 180 subjects remain in the sample. We continue to gather data from school records, teacher evaluations, direct observations made of the children in school (more than half of the subjects) and, for a subset, detailed observations and ratings in a summer daycamp context. The school and daycamp observations will be the main source of data for this discussion.

## Recent Findings From The Minnesota Longitudinal Study

We do in fact continue to find solid evidence for continuity in individual adaptation, both from infancy to middle childhood and even more strongly from the preschool years to middle childhood. For example, using observation based Q-sorts at school, we have found that those having had histories of secure attachment in infancy are higher on the Block's ego reseliency construct than those with histories of anxious attachment. They also are more competent with peers and less anxious.

In many ways the summer daycamp data is the most pertinent of all. We have seen the first of 3 waves of 16 10-year-old children. Since the camps last 4 weeks, and we had both a fleet of observers and 4 highly trained counselors, we can get data of the highest quality and richest detail. Even based on the first 16 (9 secure, 7 anxious) we have a number of significant results. For example, when we composite the independent Q-sorts and ratings of the 4 counselors, all of whom remained blind to any previous data on these children, those with secure histories were again higher on ego-resiliency. They also were rated higher on self-confidence, lower on dependency, and dramatically higher on the overall competence composite. Observational data, too showed those with secure histories to be less dependent, less often isolated, and less often the passive recipient of aggression. Intriguing leads concerning depth of friendship and selection of friends await the additional data of subsequent camps; for example, there is a clear tendency for those with secure histories to think of friendships in terms of emotional concepts.

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Eleven of these 16 children had participated in our nursery school program 5 years previously. For these children we had composite Q-sorts of 3 preschool teachers, again all blind but all skilled observers of children. When we correlated the Q-sort-based preschool and daycamp ego-resiliency scores of these children the resulting Pearson r was .60. This is comparable to stability results from late middle childhood to late adolescence (Gjerde et al., 1986; Masten, 1987). But it is impressive across the preschool to middle childhood periods, and likely only could be found using such an extensive data base.

Despite these results which certainly seem promising, we at times find ourselves dissatisfied with what we have been able to do to date. This is not simply because the .60 correlation just reported probably will shrink some as we add more subjects, and not just because some variables have not yielded significant results. The dissatisfaction derives largely from the unshakeable impression that the data do not begin to reflect the remarkable coherence of individual adaptation over time. The children, we would argue, show much more coherence in their development than we currently know how to show. Primarily, this hinges on the perplexing problem of how a child, like a relationship, can change dramatically and yet remain the same. We will present some concrete illustrations of this below.

One problem, of course, is that most approaches to this problem rely on group data; yet there are idiosyncracies even within groups. The correlation of .60 among ego resiliency scores is therefore quite impressive. But we all would agree that children with the same ego-resiliency score differ enormously one from the other, and this is beyond differences on ego-control or any other single dimension. How can we show that there is continuity within the particular pattern of adaptation of a particular child?

We tried one idiographic approach that provided only mixed results. We correlated each child's preschool Q-sort (all 100 items) with his or her own Q-sort from the daycamp. What we found was that for 6 of the 11 children the intrasubject correlations were substantial, but for others they were low, and the average of these 11 correlations was only .41. In some cases the low correlations made sense. One child, for example, who had been a quite well adjusted preschooler was viewed as angry and removed from the camp counselors and aggressive or even bullying with the children. This child's father (unknown to the counselors) had been brutally murdered a few months before the camp and, indeed, the boy was angry and did keep his distance from the counselors. This could account for the low Q-sort correlations over time. Interestingly, this child was nonetheless given the highest self-confidence rating by the counselors (he was completely physically competent and mastered any challenge) and he was the highest sociometrically ranked male. He also was observed to show remarkable instances of role taking and empathy. We would argue, therefore, that his historically based personality organization remained apparent even within the dramatic change in some aspects of his manifest behavior.

Other cases were more perplexing. For one girl the correlation between the two composited Q-sorts was near 0, yet this child was immediately recognized by former preschool teachers from her behavior. The consensus of

us who knew the child well at both ages was that her basic coping style was exactly the same - adult-oriented, pouty, dramatic, soft, and somewhat infantile. She was selected as the target for advances by a sexually inappropriate male and, given her history, she was the only candidate in the camp. Still, the correlation over time approached zero. And there was another such case where a child who was out of control with rage in the preschool and hostile and caustic towards others at the camp showed a near-zero correlation over time. What is the problem?

One difficulty we noted immediately was that in using the same Q-sort deck over time, one is assuming that the items retain a similar meaning across ages. Some likely do, but some do not. For example, items concerning crying or solitary play are far more normative for preschoolers than for 10-year olds. A preschoolers who occasionally cries would never have the "cries easily" item placed as characteristic, but a 10 year old would. And being alone or just with a counselor with any frequency in a daycamp is very striking behavior. So the same item doesn't mean the same thing, and such changes in meaning put severe stress on the idiographic approach. And it would take an enormous amount of empirical work to come up with equivalent items over time. In fact, to solve this problem is to understand development. This probably is why the Blocks use their dimensions of ego control and ego resiliency to summarize the data at each age. These two girls had very stable scores on these dimensions over time. (Different items were placed as characteristic, but they did not include items suggesting resourcefulness, good self management capability, and/or competence with peers.)

To summarize to this point, two important keys to demonstrating continuity of individual adapation over time are having a sufficient data base and having some degree of equivalency. We solved the first problem to a large extent (by compositing Q-sorts based on weeks of observation in a range of salient situations and by capitalizing on the robustness of the Ainsworth attachment assessment scheme). The second problem requires more work. Moreover, there are a number of other conceptual problems that will remain even if the equivalency problem (in the simple sense we have presented it) is solved.

## Conceptual Issues in Studying Continuity of Individual Adaptation

We have been grappling with four issues, each of which needs to be resolved, if we are to adequately determine the degree of continuity in individual adapation or, more importantly, understand the nature of coherence in individual development. These issues concern increasing complexity of behavioral organization, developmental transformations, branching developmental pathways, and multiple etiologies.

First, with development, <u>behavioral organization becomes increasingly complex</u>. In infancy, differences in expression of aggression are difficult to fathom. But even by age two some children will aggress against the mother as part of sustained interactions, while others show unprovoked aggression as part of a pattern of mutual distance. And this becomes enormously more complex by preschool. Agonism is meanifest by different

children in different circumstances and may have different correlates for two groups, including different origins. Some nursery school children (those with histories of avoidant attachment) manifest defiance of teachers, unprovoked hostile aggression and systematic hazing of children, exploiting those who are vulnerable. Total agonism scores are not different from those with histories of resistant attachment, whose aggression represents an unsystematic flailing out in frustration. One must examine the behavioral and situational context of particular behaviors rather than simply frequencies. As another example, pervasively hyperactive children at age 3 may manifest hyperactivity under more restrictive circumstances at age 6, as behavioral organization becomes more complex. Showing continuity requires complex observation and analysis. While one may want to collapse across situations at one age, one may wish to focus on more selective situations at another.

Second, transformations can occur whereby an underlying structure is manifest in dramatically different ways with development. Those with histories of avoidant attachment and later high hostile aggression were not observed to be aggressive as infants. High Passivity in kindergarten girls is predicted by high anger scores during a tool problem task at age two years. Thus an early broad pattern of maladaptation predicts a later pattern of maladaptation consistent with cultural gender stereotypes. (Anger was not predictive for boys.) In a similar way developmental psychopathologists find that broad patterns of maladaptation in middle childhood (conduct disorders, poor peer relations) predict diverse forms of adult psychopathology.

Third, a common developmental core may lead to branching pathways and multiple forms, theoretically consistent but phenotypically dissimilar manifestations. Some boys who experienced seductive maternal behavior as toddlers later show sexual distortions, including inappropriate physical contact with other children, staff or teachers. Some are victimized by other children. Some are hyperactive/impulsive/undercontrolled. Some are highly tense and anxious. Some elicit a great deal of affectionate contact from adults and older children. And various combinations of these outcomes occur. All are understable consequences of this type of care. Were only a single outcome selected for study a significant relationship would be difficult to demonstrate. By allowing for these diverse and yet finite outcomes predictability is greatly enhanced. And beyond being useful for demonstrating consequences of seductiveness, abuse or other patterns of care, the concept of diverging pathways and multiple forms is quite important for demonstrating continuity across ages. Children may demonstrate one of a coherent set of forms at one observation, a different one at another. For example, one impulsive, easily victimized preschooler by third grade was seen primarily as nurtured and protected by other children (primarily girls). His anxiety level was consistent across the two assessments but by the third grade he was not victimized nor manifestly hyperactive. That both the earlier and later patterns are consistent with a history of seductive care allows perception of substantial continuity whereas a less complex analysis would suggest this child to be markedly inconsistent. Even more frequent are cases where at one age a child is emotionally isolated and at another age is a bully (both of which are expectable patterns for children with histories of avoidant attachment).

One must, of course, specify the patterns a priori and/or cross validate findings. The result will be not only more impressive demonstrations of continuity to date but a greatly enhanced understanding of development.

Fourth, and closely related to number 3, there may be multiple routes to the same basic outcome. If we distinguish among the various routes to, and meanings of, behaviors such as aggression and hyperactivity, our ability to predict subsequent transformations should be enhanced. Some hyperactivity may be traced to parental overstimulation, some to lack of controls, some to organic factors. Our longitudinal research indicates relatively little overlap in these groups and relatively little relationship between origin and hyperactive symptoms at school entry or treatment received. For example, none of the first 4 children placed on Ritalin showed any evidence of organicity. All experienced parental overstimulation in the early years. We would expect differences in the organization of hyperactive symptoms with other behaviors depending on type of origin.